

What is claimed is:

1 1. A system for generating a two-dimensional spatial arrangement of
2 a multi-dimensional cluster rendering, comprising:
3 a set of stored clusters from a concept space comprising a multiplicity of
4 clusters visualizing document content based on extracted terms, each cluster in the
5 clusters set sharing a common theme comprising shared terms;
6 a placement module determining an anchor point on at least one such
7 cluster within the clusters set, the anchor point comprising at least one open edge
8 formed along a vector defined from the center of the at least one such cluster; and
9 arranging the clusters in the clusters set into an arrangement of adjacent clusters
10 originating from the anchor point at one such open edge.

1 2. A system according to Claim 1, further comprising:
2 a sort module sorting the clusters in each clusters set by cluster size.

1 3. A system according to Claim 2, wherein the clusters are sorted in
2 order of one of increasing and decreasing cluster size.

1 4. A system according to Claim 1, further comprising:
2 an alignment submodule placing the clusters along a straight vector within
3 the cluster arrangement.

1 5. A system according to Claim 1, further comprising:
2 an angle submodule defining the vector for each anchor point at a
3 normalized angle.

1 6. A system according to Claim 5, wherein each cluster positioned at
2 an endpoint within the cluster arrangement defines at least one further anchor
3 point than each cluster position intermediately positioned.

1 7. A system according to Claim 5, wherein each normalized angle is
2 at approximately 60°.

1 8. A system according to Claim 1, further comprising:

2 a rendering module rendering each cluster as a circle having an
3 independent radius.

1 9. A system according to Claim 8, wherein each circle has a volume
2 dependent on a number of concepts contained in the cluster.

1 10. A system according to Claim 1, further comprising:
2 a rendering module rendering each cluster as a convex volume.

1 11. A system according to Claim 1, wherein the placement module
2 determines a further anchor point on at least one such cluster within the clusters
3 set, further comprising:
4 a grafting submodule grafting an additional arrangement originating from
5 the further anchor point at one such open edge.

1 12. A system according to Claim 1, further comprising:
2 a grouping submodule placing each cluster having a theme different than
3 the common theme.

1 13. A system according to Claim 1, wherein each convex shape
2 represents visualized data for a virtual semantic concept space.

1 14. A method for generating a two-dimensional spatial arrangement of
2 a multi-dimensional cluster rendering, comprising:

3 selecting a set of clusters from a concept space comprising a multiplicity
4 of clusters visualizing document content based on extracted terms, each cluster in
5 the clusters set sharing a common theme comprising shared terms;

6 determining an anchor point on at least one such cluster within the clusters
7 set, the anchor point comprising at least one open edge formed along a vector
8 defined from the center of the at least one such cluster; and

9 arranging the clusters in the clusters set into an arrangement of adjacent
10 clusters originating from the anchor point at one such open edge.

1 15. A method according to Claim 14, further comprising:

2 sorting the clusters in each clusters set by cluster size.

1 16. A method according to Claim 15, wherein the clusters are sorted in
2 order of one of increasing and decreasing cluster size.

1 17. A method according to Claim 14, further comprising:
2 placing the clusters along a straight vector within the cluster arrangement.

1 18. A method according to Claim 14, further comprising:
2 defining the vector for each anchor point at a normalized angle.

1 19. A method according to Claim 18, wherein each cluster positioned
2 at an endpoint within the cluster arrangement defines at least one further anchor
3 point than each cluster position intermediately positioned.

1 20. A method according to Claim 18, wherein each normalized angle
2 is at approximately 60°.

1 21. A method according to Claim 14, further comprising:
2 rendering each cluster as a circle having an independent radius.

1 22. A method according to Claim 21, further comprising:
2 calculating a volume for each circle dependent on a number of concepts
3 contained in the cluster.

1 23. A method according to Claim 14, further comprising:
2 rendering each cluster as a convex volume.

1 24. A method according to Claim 14, further comprising:
2 determining a further anchor point on at least one such cluster within the
3 clusters set; and
4 grafting an additional arrangement originating from the further anchor
5 point at one such open edge.

1 25. A method according to Claim 14, further comprising:

2 placing each cluster having a theme different than the common theme.

1 26. A method according to Claim 14, wherein each convex shape
2 represents visualized data for a virtual semantic concept space.

1 27. A computer-readable storage medium holding code for performing
2 the method according to Claims 14, 15, 17, 18, 21, 23, 24, 25 and 26.

1 28. A system for arranging concept clusters in thematic relationship in
2 a two-dimensional visual display space, comprising:

3 a plurality of stored clusters selected from a multi-dimensional
4 visualization space sharing a common theme comprising at least one concept,
5 each theme logically representing one or more concepts based on terms extracted
6 from a document set;

7 a placement module combining in order each cluster not yet grouped from
8 the selected clusters for the shared common theme into a list of placeable clusters;
9 and grafting each clusters list into a grouping of one or more other clusters lists at
10 an anchor point comprising an open edge formed along a vector defined from the
11 center of one such cluster in the grouping, the clusters in each other clusters list
12 sharing at least one concept represented in the shared common theme.

1 29. A system according to Claim 28, further comprising:
2 a sort module sorting the clusters in each clusters list in sequence.

1 30. A system according to Claim 29, wherein the sequence comprises
2 a number of documents containing the one or more logically represented
3 concepts.

1 31. A system according to Claim 29, wherein the sequence comprises
2 one of ascending and descending order.

1 32. A system according to Claim 28, wherein each cluster is formed as
2 one of a circular and non-circular convex volume.

1 33. A system according to Claim 28, wherein the vector for each
2 cluster is defined at normalized angles.

1 34. A system according to Claim 28, further comprising:
2 a display and visualize module generating a visual display space
3 containing the groupings of clusters lists.

1 35. A system according to Claim 28, wherein the theme contains
2 concepts within a pre-specified range of variance.

1 36. A method for arranging concept clusters in thematic relationship in
2 a two-dimensional visual display space, comprising:
3 selecting clusters from a multi-dimensional visualization space sharing a
4 common theme comprising at least one concept, each theme logically
5 representing one or more concepts based on terms extracted from a document set;
6 combining in order each cluster not yet grouped from the selected clusters
7 for the shared common theme into a list of placeable clusters; and
8 grafting each clusters list into a grouping of one or more other clusters
9 lists at an anchor point comprising an open edge formed along a vector defined
10 from the center of one such cluster in the grouping, the clusters in each other
11 clusters list sharing at least one concept represented in the shared common theme.

1 37. A method according to Claim 36, further comprising:
2 sorting the clusters in each clusters list in sequence.

1 38. A method according to Claim 37, wherein the sequence comprises
2 a number of documents containing the one or more logically represented
3 concepts.

1 39. A method according to Claim 37, wherein the sequence comprises
2 one of ascending and descending order.

1 40. A method according to Claim 36, further comprising:
2 forming each cluster as one of a circular and non-circular convex volume.

- 1 41. A method according to Claim 36, further comprising:
2 defining the vector for each cluster at normalized angles.
- 1 42. A method according to Claim 36, further comprising:
2 generating a visual display space containing the groupings of clusters lists.
- 1 43. A method according to Claim 36, wherein the theme contains
2 concepts within a pre-specified range of variance.
- 1 44. A computer-readable storage medium holding code for performing
2 the method according to Claims 36, 37, 38, 39, 40, 41, 42, and 43.